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Off-Site Heifer Raising on U.S. Dairy Operations, 2007

In 2007, the U.S. Department of Agriculture's National Animal Health Monitoring System (NAHMS) conducted the Dairy 2007 study. In all, 17 of the Nation's major dairy States* representing 79.5 percent of U.S. dairy operations and 82.5 percent of U.S. dairy cows participated in the study. During January 2007, producers were asked about their use of off-site calf ranches.

Off-site calf ranches

Heifer rearing represents about 20 percent of the total operating expenses on dairy operations, making it the second largest expense behind feeding costs.¹ To raise heifers, dairies invest money and resources in feed, labor, and housing without receiving a return on their investments until the heifers calve, usually around 24 months of age. As dairy farms become larger, use of off-site calf ranches is becoming increasingly common.² Calf ranches that raise a large number of heifers likely realize economies of scale that allow them to produce heifers at a cost lower than a single dairy farm.

Calves are transported to the calf ranches at a predetermined age, such as prior to or after weaning, and are raised there. Typically, producers and calf ranches enter into a contract that specifies expectations of care and growing performance, along with payment responsibilities. Various types of contracts are used, e.g., contracts in which producers pay calf ranches by the day or by pound of gain and contracts in which the producer sells heifers to the ranch upon delivery and retains the option to buy them back prior to freshening.

On operations with limited facilities, labor, or other components of a dairy operation, contracting with an off-site calf ranch has many potential advantages. Calf-ranch personnel are usually dedicated to working only with calves, which can result in increased attention to the feeding and health of calves and also decreased exposure to adult cow disease. In addition, if calves are not commingled with older animals or animals from other operations, their exposure to disease agents such as

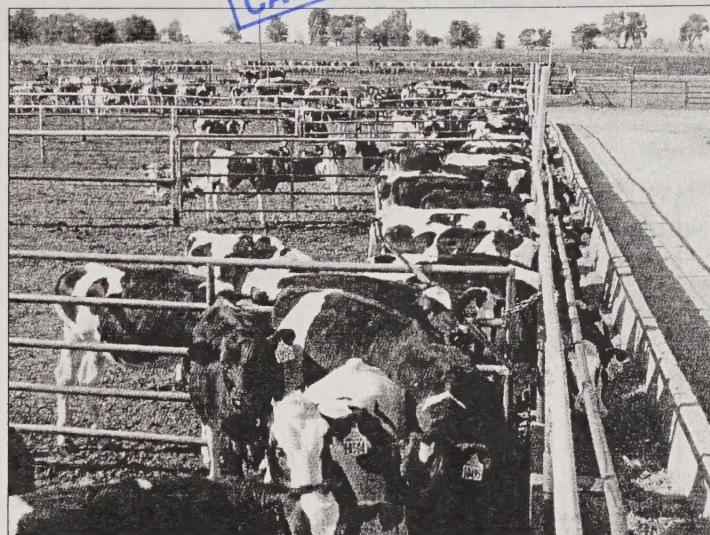


Photo courtesy of Dr. Jason Lombard

Mycobacterium avium subspecies *paratuberculosis*—the causative agent of Johne's disease—is reduced. Moving heifers off-site frees up both labor and space previously dedicated to heifer housing and feed-storage facilities that can be used for the milking herd. Raising heifers off-site also reduces the amount of manure produced at single sites and/or may allow producers to maintain larger milking herds on the same acreage. Using off-site calf ranches may enable producers to reduce expenses, especially if the heifer-raising aspect of the operation is costly or inefficient, which might be indicated by consistent, higher-than-normal calf illness or death loss, or by heifers that calve later than 24 months of age and/or calve at sub-optimal weights.

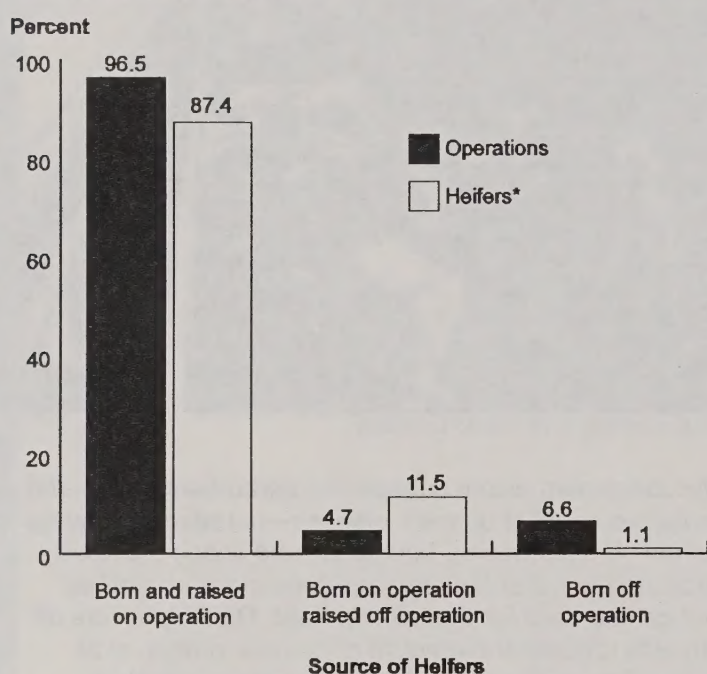
A significant disadvantage of using an off-site calf ranch is the increased risk of disease introduction into the herd stemming from commingling heifers from different operations. A previous study found that only 6 of 57 calf ranches permanently separated heifers according to farm of origin during the rearing period.² Other drawbacks of using calf ranches include less control over management practices used in raising heifers, transportation costs of moving heifers to the off-site facility, and issues related to entering into and meeting contract obligations.

*California, Idaho, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, New Mexico, New York, Ohio, Pennsylvania, Texas, Vermont, Virginia, Wisconsin, and Washington

Source of heifers

Although 4.7 percent of operations had heifers that were born on the operation but raised elsewhere, these operations accounted for 11.5 percent of all dairy heifers. Of the remaining heifers, 87.4 percent were born and raised on the operation, and nearly all operations (96.5 percent) had at least some dairy heifers that were born and raised on the operation (figure 1).

Figure 1. Percentage of Operations and Percentage of Heifers, by Source of Heifers

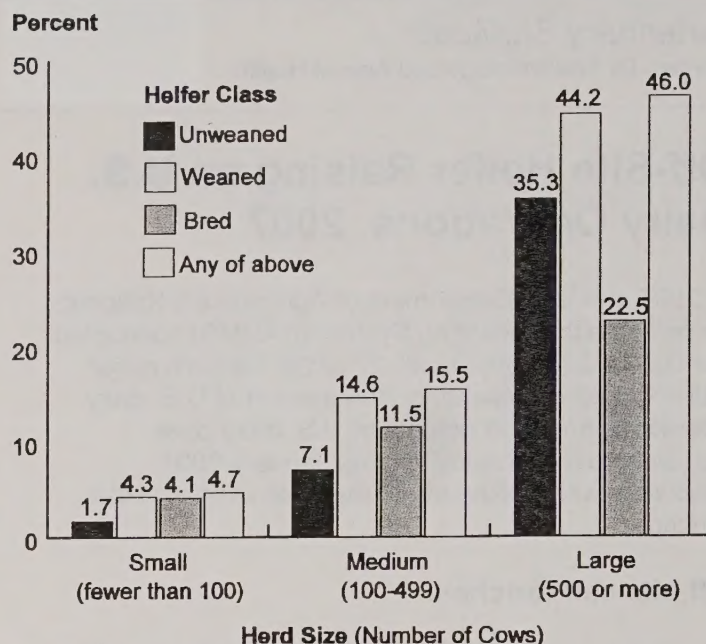


*As a percentage of January 1, 2007, inventory

Raising dairy heifers off-site

About 1 in 10 operations (9.3 percent) raised some dairy heifers off-site. The percentage of operations that raised heifers off-site increased as herd size increased for all heifer classes. Less than 5 percent of small operations raised any dairy heifers off-site, compared to 15.5 percent of medium operations and 46.0 percent of large operations. Approximately one-third of large operations (35.3 percent) raised unweaned calves off-site, compared to 7.1 percent of medium operations and 1.7 percent of small operations. Similar herd-size differences in the percentages of operations that raised heifers off-site were observed among all heifer classes—unweaned, weaned, and bred (figure 2).

Figure 2. Percentage of Operations that Raised Any Heifers Off-Site, by Heifer Class and By Herd Size



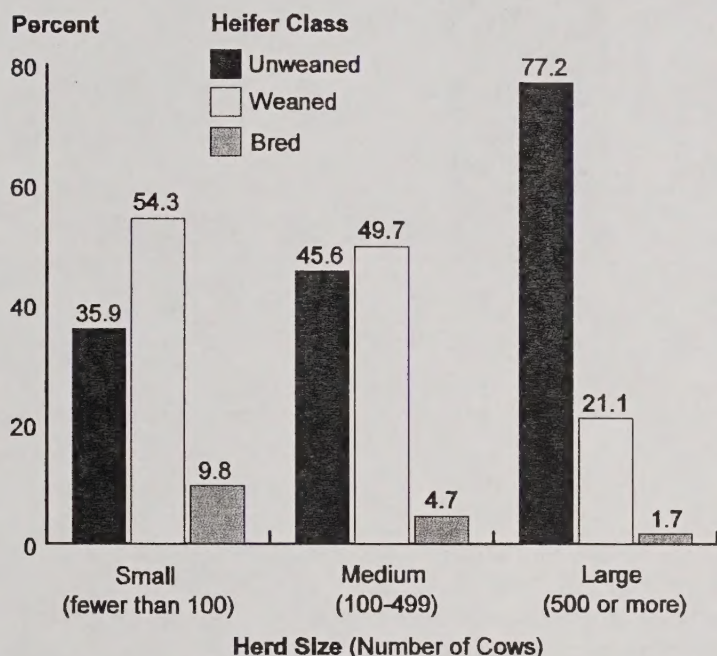
Primary class and age of heifers sent to calf ranches

Producers that sent any heifers off-site to be raised were asked to identify the primary class of dairy heifers sent off-site. Half of these operations (50.1 percent) primarily sent unweaned calves, and the operations typically sent these calves off-site at an average* age of 4.9 days. Weaned calves were the primary class of dairy heifers sent off-site for 44.1 percent of operations, and these calves were sent at an average age of 189.8 days. Only 5.8 percent of operations primarily sent bred heifers off-site to be raised; the average age at which these heifers were sent off-site was 413.8 days. The average age at which all calves—regardless of class—were moved to the off-site facility was 110.3 days.

*The average value for all operations; a single value for each operation is summed over all operations reporting divided by the number of operations reporting.

For operations that raised any heifers off the operation, small operations most commonly sent weaned heifers off-site (54.3 percent); medium operations sent similar percentages of unweaned and weaned calves off-site (45.6 and 49.7 percent, respectively); and large operations most frequently sent unweaned heifers off-site (77.2 percent) [figure 3].

Figure 3. For Operations that Raised Any Heifers Off-Site, Percentage of Operations by Primary Heifer Class Sent Off-Site and by Herd Size



Primary class and age of heifers returning from calf ranches

Of operations that sent any heifers to calf ranches, about two-thirds (67.6 percent) brought animals back to the operation primarily as bred heifers; these heifers returned to the operation at an average age of 21.6 months. About one in three operations (30.3 percent) brought back weaned heifers at an average age of 7.0 months. Just 2.1 percent of operations brought back "other" heifers (primarily heifers that had calved). The average age at which replacement heifers of all classes returned to the operation from off-site calf ranches was 17.3 months.

A higher percentage of large operations (53.4 percent) brought back weaned heifers compared with medium and small operations (27.3 and 15.1 percent, respectively). A higher percentage of small and medium operations (79.1 and 72.2 percent, respectively) brought back bred heifers compared with large operations (46.6 percent) [table 1].

Table 1. For Operations that Sent Heifers Off-Site to be Raised, Percentage of Operations by Primary Class of Heifers Arriving or Returning to the Operation, by Herd Size

Heifer Class*	Percent Operations			
	Herd Size (Number of Cows)			All Operations
	Small (Fewer than 100)	Medium (100-499)	Large (500 or More)	
Percent	Percent	Percent	Percent	Percent
Weaned	15.1	27.3	53.4	30.3
Bred	79.1	72.2	46.6	67.6
Other**	5.8	0.5	0.0	2.1
Total	100.0	100.0	100.0	100.0

*No operations reported unweaned heifers returning from an off-site rearing facility.

**Heifers that had calved.

Distance to off-site rearing

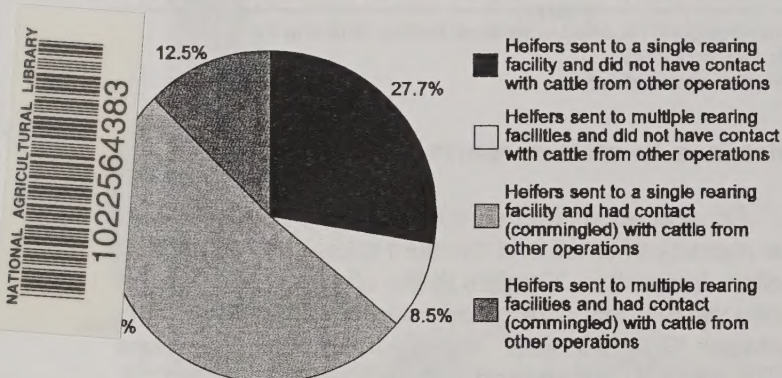
For operations that sent heifers off-site to be raised, the majority of small and medium operations transported heifers fewer than 20 miles to the off-site rearing facility, while the majority of large operations transported heifers between 5 and 50 miles. About 1 in 10 of all operations (10.6 percent) transported heifers 50 miles or more (table 2). Very few operations (4.1 percent) ever transported heifers out of State for rearing.

Table 2. For Operations that Sent Heifers Off-Site to be Raised, Percentage of Operations by Number of Miles Heifers were Transported to the Off-Site Rearing Facility, and by Herd Size

Miles	Percent Operations			
	Herd Size (Number of Cows)			All Operations
	Small (Fewer than 100)	Medium (100-499)	Large (500 or More)	
Percent	Percent	Percent	Percent	Percent
Fewer than 5.0	43.5	26.0	10.1	27.6
5.0 to 19.9	35.3	47.5	37.7	40.8
20.0 to 49.9	12.8	18.8	34.5	21.0
50 or more	8.4	7.7	17.7	10.6
Total	100.0	100.0	100.0	100.0

Producers were asked to choose the description that best described their primary off-site rearing facility. Ideally, from the standpoint of disease transmission, heifer-raising facilities would house animals from only a single operation. About one-third of operations (36.2 percent) sent their cattle to rearing facilities where they did not have contact with cattle from other operations; 27.7 of these operations sent their heifers to a single facility, and 8.5 sent their heifers to multiple facilities. However, nearly two-thirds of operations that sent heifers off the operation for rearing (63.8 percent) sent them to facilities where they did have contact with cattle from other operations. Of these operations, 51.3 percent used single facilities, and 12.5 percent sent their heifers to multiple rearing facilities (figure 4).

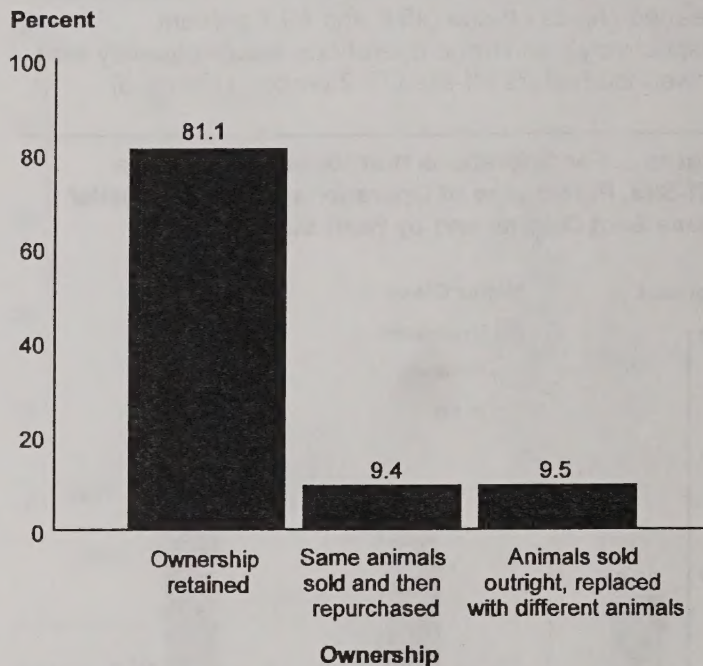
Figure 4. For Operations that Sent Heifers Off-Site to be Raised, Percentage of Operations by Primary Off-Site Rearing Facility



Ownership arrangements

Approximately 8 of 10 operations that sent dairy heifers off-site to be raised (81.1 percent) retained ownership of the heifers sent. A total of 9.4 percent of operations sold the heifers sent off-site and later repurchased the same animals, and 9.5 percent of operations sold the animals sent and replaced them with different animals (figure 5).

Figure 5. For Operations that Sent Heifers Off-site to be Raised, Percentage of Operations by Ownership of the Majority of Heifers



Summary

The decision to use off-site calf ranches should be made based on the needs and goals of the individual dairy. The producer must decide whether using on-site or off-site heifer raising is the most economical method for achieving the desired replacement heifer quality.

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References

- ¹ Heinrichs, A.J. 1993. Raising dairy replacements to meet the needs of the 21st century. *J. Dairy Sci.* 76:3179-3187.
- ² Wolf, C.A. 2003. Custom dairy calf ranch industry characteristics and contract terms. *J. Dairy Sci.* 86:3016-3022.